



Banach J. Math. Anal. 3 (2009), no. 2, 91–102

BANACH JOURNAL OF MATHEMATICAL ANALYSIS

ISSN: 1735-8787 (electronic)

<http://www.math-analysis.org>

BANACH–SAKS PROPERTIES OF C^* -ALGEBRAS AND HILBERT C^* -MODULES

MICHAEL FRANK^{1*} AND ALEXANDER A. PAVLOV²

Communicated by M. S. Moslehian

ABSTRACT. The investigation of C^* -algebras and Hilbert C^* -modules with respect to the classical, the weak and the uniform weak Banach–Saks properties is completed giving a full picture, in particular in the non-unital cases. This way some open questions by M. Kusuda and C.-H. Chu are answered. Criteria and structural characterizations are given. In particular, the weak and the uniform weak Banach–Saks property turn out to be invariant under strong Morita equivalence for non-unital C^* -algebras.

¹ HOCHSCHULE FÜR TECHNIK, WIRTSCHAFT UND KULTUR (HTWK) LEIPZIG, FACHBE-
REICH IMN, PF 301166, D-04251 LEIPZIG, F.R. GERMANY

E-mail address: mfrank@imn.htwk-leipzig.de

² MOSCOW STATE UNIVERSITY, 119 922 MOSCOW, RUSSIA, AND UNIVERSITÀ DEGLI
STUDI DI TRIESTE, I-34127 TRIESTE, ITALY

E-mail address: axpavlov@mail.ru

Date: Received: 22 May 2009; Revised: 30 August 2009; Accepted: 8 September 2009.

* Corresponding author.

2000 *Mathematics Subject Classification.* Primary 46B07; Secondary 46L08, 46L05.

Key words and phrases. Banach–Saks properties, C^* -algebras, Hilbert C^* -modules, Morita equivalence.

Partially supported by the RFBR (grant 07-01-91555) and by the DFG project “K-Theory, C^* -Algebras, and Index Theory”.